

FACULTY:	Faculty of Civil Engineering, Environment and Geodesy
FIELD OF STUDY:	Geodesy and Cartography
ERASMUS COORDINATOR OF THE FACULTY:	dr inż. Jakub Kalita
E-MAIL ADDRESS OF THE COORDINATOR:	jakub.kalita@tu.koszalin.pl
COURSE TITLE:	Satellite Geodesy
LECTURER'S NAME:	Prof. dr hab inż. Miłosława Rutkowska
E-MAIL ADDRESS OF THE LECTURER:	miloslawa.rutkowska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	6
ACADEMIC YEAR:	2019/2020
SEMESTER: (W – winter, S – summer)	W or S
HOURS IN SEMESTER:	30+15
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1 st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture, group tutorials
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	class test, presentation
COURSE CONTENT:	Fundamentals of celestial mechanics, Keplerian motion, Newtonian mechanics, Two-body problem, Orbit geometry and orbital motion, Perturbed satellite motion, Orbit determination, Satellite-based measurement techniques (SLR, GPS, GLONASS, EGNOS, GALILEO, DORIS, VLBI), global satellite-based observation databases, Application of satellite geodesy in geodynamics, position determination and satellite networks, new satellite missions (GRACE, CHAMP, EGNOS, GALILEO)
ADDITIONAL INFORMATION:	

FACULTY:	Faculty of Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Geodesy and Cartography
ERASMUS COORDINATOR OF THE FACULTY:	dr inż. Jakub Kalita
E-MAIL ADDRESS OF THE COORDINATOR:	jakub.kalita@tu.koszalin.pl
COURSE TITLE:	Electronic techniques of measurement
LECTURER'S NAME:	dr inż. Krzysztof Deska
E-MAIL ADDRESS OF THE LECTURER:	kdeska@wilsig.tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	5
ACADEMIC YEAR:	2019/2020
SEMESTER: (W – winter, S – summer)	W or S
HOURS IN SEMESTER:	45 (15+30)
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1 st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	lecture 15 h + laboratory, group tutorials, individual consultations 30 h
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	class test, written reports, project work
COURSE CONTENT:	Geodetic instruments: levels, precision levels, theodolites, EDM, manual and robotic total stations, optical and laser plummets. Construction, principles of operation, software, settings and usage of instruments. Laboratory procedures using collimators for testing, calibrating and adjusting geodetic instruments. Field procedures for testing. Techniques of measurement using geodetic instruments.
ADDITIONAL INFORMATION:	Field procedures for testing geodetic instruments in accordance with ISO 17123 standards.

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E-MAIL ADDRESS OF THE COORDINATOR:	jakub.kalita@tu.koszalin.pl
COURSE TITLE:	Real estate appraisal
LECTURER'S NAME:	dr Joanna Cymerman
E-MAIL ADDRESS OF THE LECTURER:	joanna.cymerman@wilsig.tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	4
ACADEMIC YEAR:	2019/2020
SEMESTER: (W – winter, S – summer)	W or S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1 st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture, group tutorials, individual consultations
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	class test
COURSE CONTENT:	Legal conditions for property valuation; professional standards for property valuation; the value of the real estate as the basis for the valuation, objectives and functions of real estate appraisal; real estate valuation methods; documentation of the property valuation process; sources of information for property valuation
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ERASMUS COORDINATOR OF THE FACULTY:	dr inż. Jakub Kalita
E-MAIL ADDRESS OF THE COORDINATOR:	jakub.kalita@tu.koszalin.pl
COURSE TITLE:	Physical geodesy and geodetic astronomy
LECTURER'S NAME:	dr Katarzyna Kraszewska
E-MAIL ADDRESS OF THE LECTURER:	katarzyna.kraszewska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	4
ACADEMIC YEAR:	2019/2020
SEMESTER: (W – winter, S – summer)	W or S
HOURS IN SEMESTER:	15+15
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1 st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Group tutorials, lecture
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test/presentation
COURSE CONTENT:	Earth gravity field, gravimetry, methods of gravity measurements, astronomical coordinates systems, time measurement and introductions to geodetical astronomy
ADDITIONAL INFORMATION:	

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ERASMUS COORDINATOR OF THE FACULTY:	dr inż. Jakub Kalita
E-MAIL ADDRESS OF THE COORDINATOR:	jakub.kalita@tu.koszalin.pl
COURSE TITLE:	Adjustment calculus
LECTURER'S NAME:	dr Katarzyna Kraszewska
E-MAIL ADDRESS OF THE LECTURER:	katarzyna.kraszewska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	4
ACADEMIC YEAR:	2019/2020
SEMESTER: (W – winter, S – summer)	W or S
HOURS IN SEMESTER:	15+15
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1 st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture, group tutorials
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	project work
COURSE CONTENT:	Strict adjustment of horizontal and height geodetic networks using least squares adjustment method, conditional equations, estimation of accuracy parameters
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FIELD OF STUDY:	Geodesy and Cartography
ERASMUS COORDINATOR OF THE FACULTY:	dr inż. Jakub Kalita
E-MAIL ADDRESS OF THE COORDINATOR:	jakub.kalita@tu.koszalin.pl
COURSE TITLE:	Precise GNSS positioning
LECTURER'S NAME:	dr inż. Jakub Kalita
E-MAIL ADDRESS OF THE LECTURER:	jakub.kalita@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	5
ACADEMIC YEAR:	2019/2020
SEMESTER: (W – winter, S – summer)	W or S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1 st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture, group tutorials
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	class test
COURSE CONTENT:	Reference coordinate systems, Global Navigation Satellite Systems, Observation planning, GNSS observations and standards, Field measurements, Single Point Positioning, GNSS vector estimation and adjustment, Precise point positioning, Reference stations networks
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FACULTY:	Faculty of Civil Engineering, Environment and Geodesy
FIELD OF STUDY:	Civil Engineering
ERASMUS COORDINATOR OF THE FACULTY:	dr inż. Jakub Kalita
E-MAIL ADDRESS OF THE COORDINATOR:	jakub.kalita@tu.koszalin.pl
COURSE TITLE:	Town planning and architecture
LECTURER'S NAME:	mgr inż. arch. Maciej Siekierski
E-MAIL ADDRESS OF THE LECTURER:	architekt@wilsig.tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
ACADEMIC YEAR:	2019/2020
SEMESTER: (W – winter, S – summer)	W or S
HOURS IN SEMESTER:	15
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1 st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	lecture/ group tutorials
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	project work
COURSE CONTENT:	Architecture and urban planning - comparison of concepts. Principles of city design. Types of cities. The history of construction solutions in architecture.
ADDITIONAL INFORMATION:	The course is based on examples from Europe, Asia, Central America and South America.

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ERASMUS COORDINATOR OF THE FACULTY:	dr inż. Jakub Kalita
E-MAIL ADDRESS OF THE COORDINATOR:	jakub.kalita@tu.koszalin.pl
COURSE TITLE:	Mathematics I
LECTURER'S NAME:	Prof. Volodymyr Sushch
E-MAIL ADDRESS OF THE LECTURER:	volodymyr.sushch@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	5
ACADEMIC YEAR:	2019/2020
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30 + 30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1 st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture + practice
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	<p style="text-align: center;">Linear algebra</p> <p>Complex numbers: the unit imaginary number, the Cartesian form or algebraic form of complex numbers, complex plane, absolute value, conjugation and distance, geometric interpretation of complex numbers, the operations on complex numbers, the polar form of complex numbers (the trigonometric form), Euler formula, Moivre's formula, Powers and roots of complex numbers, solutions of polynomial equations. Matrices: definition and notation, matrix operations, matrix multiplication, square matrices, determinant of a matrix, properties of determinants, matrix inverses, rank of a matrix . System of linear equations: matrix equation, solution set, solving linear systems (eliminations of variable - Gauss-Jordan elimination, Cramer's rule and other methods). Vectors in Euclidean space: vector operations, linear combination, linear independence, scalar product, vector product.</p> <p style="text-align: center;">Differential calculus</p> <p>Differentiation and the derivative of real-valued functions of a single real variable: definition via difference quotients, the derivative as a function, continuity and differentiability, higher derivatives. Computing the derivative: derivatives of elementary functions, product rule, quotient rule, chain rule. Applications of the derivative: L'Hospital's rule, critical points, monotone increase and decrease, minimization and maximization, local minima and maxima (the first derivative test), using the second derivative, the concavity of the graph of a function.</p>
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E-MAIL ADDRESS OF THE COORDINATOR:	jakub.kalita@tu.koszalin.pl
COURSE TITLE:	Mathematics II
LECTURER'S NAME:	Prof. Volodymyr Sushch
E-MAIL ADDRESS OF THE LECTURER:	volodymyr.sushch@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	4
ACADEMIC YEAR:	2019/2020
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30 + 30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1 st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture + practice
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	<p style="text-align: center;">Integral calculus</p> <p>The indefinite integral of real-valued functions of a single real variable (Formal definition, Properties of integrals, Finding the value of an integral (integration) , Higher derivatives) Techniques for computing integrals (Integration by substitution, Integration by parts, Integration by trigonometric substitution, Integration by reduction formulae, Integration by partial fractions, Integration using Euler's formula. The definite integral, the Riemann integral (Definition and properties, Fundamental theorem of calculus - the Newton-Leibniz theorem). Applications of definite integrals, Improper integrals (Convergence of the integral, Singularities)</p> <p style="text-align: center;">Ordinary differential equations (ODE)</p> <p>Basic concepts and classifying of differential equations. Solutions of differential equations (a particular solution and the general solution of a differential equation). Initial-value and boundary-value problems. First order ODE: Separable equations, Homogeneous equations, Exact equations, Linear equations (homogeneous and non-homogeneous), Bernoulli equations, Solved problems. Second order linear ODE: Linear differential equations (linearly independent solutions, the Wronskian), Linear homogeneous ODE with constant coefficients, (the characteristic equation), Linear non-homogeneous ODE with constant coefficients, The method of undetermined coefficients, Variation of parameters, Linear ODE with variable coefficients.</p>
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